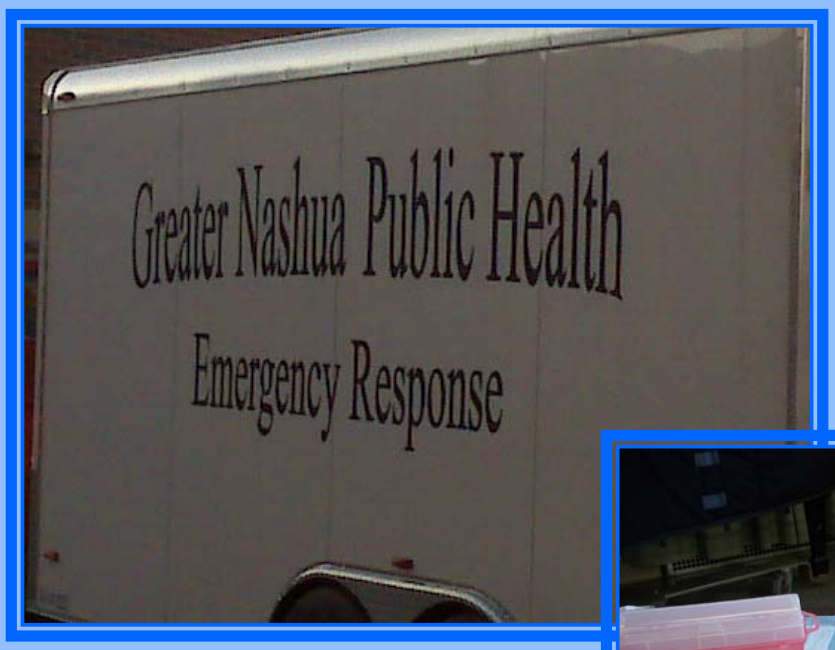
Chapter 8:

Emergency Preparedness



Source: City of Nashua, Division of Public Health and Community Services

The United States Department of Homeland Security National Response Framework defines a disaster as "any natural or manmade incident, including terrorism that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions."[1] Examples of disasters include hurricanes, tornados, volcanoes, terrorism, anthrax attacks, and chemical emergencies. In the recent past, large scale disasters such as Hurricane Katrina and the Deepwater Horizon Oil Spill have affected the United States. Following the terrorist attacks of September 11, 2001 and the anthrax bioterrorism attacks in 2001, the public health field became more intertwined and involved in overall public health emergency preparedness and incident specific plans became "all hazard" plans. Since 2000, New Hampshire has experienced 18 federally declared weather disasters (10 declared as Major Disasters) including severe rain, flooding, snow and ice events.[2] In addition, on April 26, 2009 the US Department of Health and Human Services declared a national Public Health Emergency in response to the emergence of novel H1N1 Influenza.[3] On June 11, 2010 the World Health Organization declared that H1N1 had reached pandemic levels, marking the first influenza pandemic since 1968.[4] Some of the most common disasters experienced in New Hampshire and Nashua include blizzards and flooding, most notably the Mother's Day floods in 2006 and the ice storm in 2008.

Learning how to prevent, prepare for and recover from potential disasters and emergencies greatly increase the resiliency of individuals and communities. For example, in New Hampshire, the average resident has significant experience in preparing for and responding to winter weather emergencies. In much the same way, public health preparedness relies upon a strong base of individuals who are trained to watch for and respond to potential threats to the health of the community. By continually monitoring for illness in the community, the public health system is prepared to rapidly initiate a response at the first sign of any potential threat.

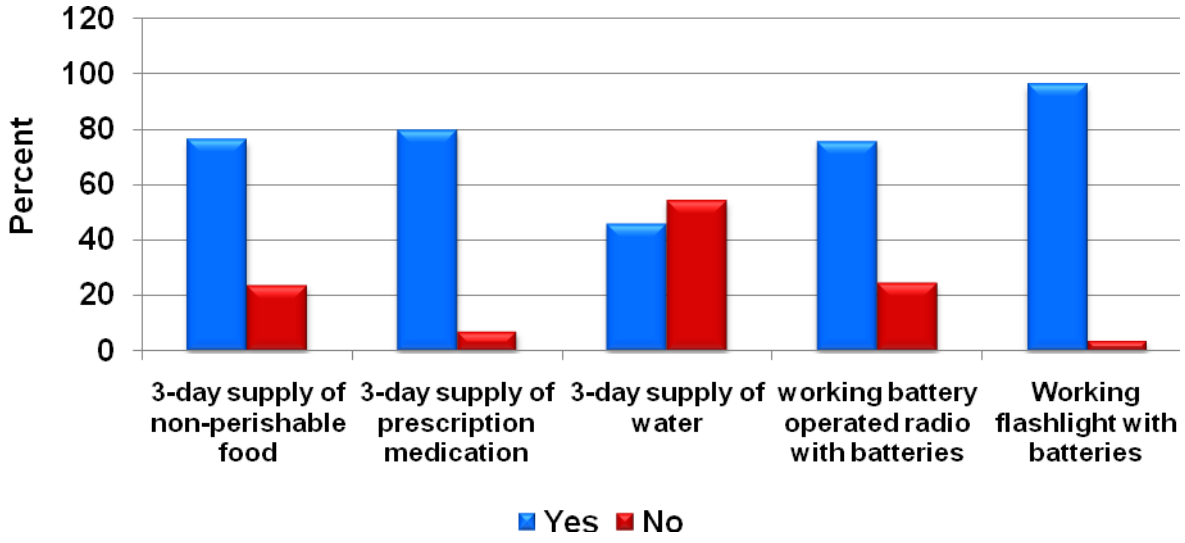
> ***"Local public health agencies are the front line in all of this. Preparedness, at its heart, is a local phenomenon.***
>
> ***- Dr. Julie Gerberding***
>
> **Former Director of the CDC**

Community-Level Emergency Preparedness

It is important for individuals and families to prepare for a natural disaster or an act of terrorism. According to the Behavioral Risk Factor Surveillance System (BRFSS), 13.9% (CI 9.3-18.4%) of Nashua residents are well prepared to handle a large-scale disaster, 59.9% (CI 52.8-67%) are somewhat prepared and 26.2% (CI 19.6-32.8%) are not prepared at all. State and local officials recommended that individuals, families and cities prepare to be self-sufficient for at least three days. Ready.gov, a website maintained by FEMA to assist in preparedness efforts, tells people to get a kit, make a plan and be informed. An emergency kit should include food, water, prescription medication, battery operated radio, first aid kit, flashlight, and maps. Considerations also need to be made for pets, individuals with functional needs, infants and the elderly.[5] According to the BRFSS, when asked if

the household has a 3-day supply of non-perishable food, medications, and water, the percent of affirmative responses varied from 76.2% (CI 69.8-82.6%) with non-perishable food, 79.6% (73.8-85.3%) with prescription medications, and 45.8% (CI 38.6-53%) with water for everyone that lives in the household (Figure 8.1). Seventy-five percent (75% CI 69.6-81.7%) of respondents have a working battery operated radio and 96.2% (CI 93.6-98.8%) have a working flashlight and working batteries (Figure 8.1). However, only 30.1% (CI 23.6-36.5%) of Nashua residents have all five of these preparedness components.[6] Furthermore, according to the 2010 Nashua Community Health Survey (2010 NCHS), when evaluating preparedness in the household prior to an event, 98% percent of households have smoke detectors, 65% have carbon monoxide detectors and 73% have fire extinguishers. Only 49% of households have an alternate source of heat but 93% have air conditioning (Table 8.1).[7]

Figure 8.1 At Home Emergency Supplies for Nashua Residents



Source: NH DHHS

65% of households have a working carbon monoxide detector.

- ***2010 Nashua Community Health Survey***

For more information on carbon monoxide poisoning, go to Chapter 5: Healthy Homes and Environmental Health.

Table 8.1 Household Safety and Preparedness

Do you have - ? (Weighted Frequencies)			
	Estimated number of housing units with Item	**Percentage (n) with Item**	**95% Confidence Intervals**
Working smoke detector	33,580	98.6% (204)	98.4-98.7%
Working carbon monoxide detector	22,264	65.3% (135)	64.8-65.8%
Working fire extinguisher	24,724	72.6% (150)	72.1-73.0%
Adequate heating for the winter	33,908	99.5% (206)	99.4-99.6%
An alternate heating source if the power goes out	16,728	49.1%(102)	48.6-49.6%
Working air conditioner or central air	31,776	93.3% (193)	93-93.5%

Source: City of Nashua, Division of Public Health and Community Services

Ready.gov also recommends that citizens be informed and knowledgeable about the incident. Individuals and families need to be able to get emergency information and recommendations from emergency officials in a timely and accurate manner.[5] During the 2010 NCHS, 52% of respondents said they would use the television as their primary means of getting information from authorities and 20% said they would use the radio (Table 8.2).[7] However, the presence of power in the household would affect the way residents received information from authorities. Using battery powered radios and other methods such as signs and door-to-door flyers may be needed during the emergency.

Table 8.2 Information Gathering During an Emergency

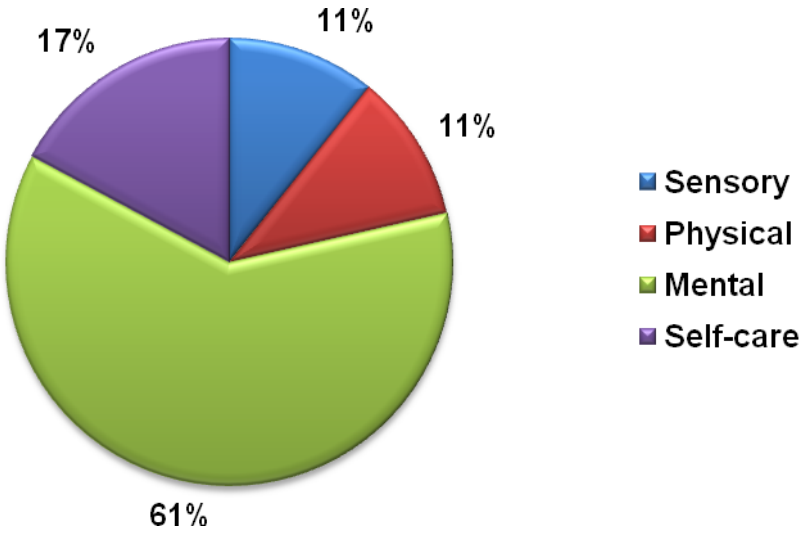
What would be your main method or way of getting information from authorities in a large-scale disaster or emergency?		
Weighted Frequencies	**Estimated number of housing units**	**Percentage (n)**
Television	17,876	52% (109)
Radio	6,888	20% (42)
Internet	6,192	18% (37)
Other	3,116	10% (19)
Source: 2010 Nashua Community Health Survey		

Functional Needs Populations

Planning for individuals with functional needs is imperative to ensure the services they need during and following a disaster are available and accessible. Functional needs includes individuals with a wide range of issues, such as physical or mental disabilities, hearing or visual impairments, and not using English as their primary language. Individuals that are at fixed facilities, such as long-term care facilities, are also considered to have functional needs. Evacuation planning, emergency sheltering and communications are important pre-disaster considerations to have in place in order to accommodate these needs. Some examples of this type of planning are supplying durable medical equipment and planning for transport of wheelchairs during evacuations.[8]

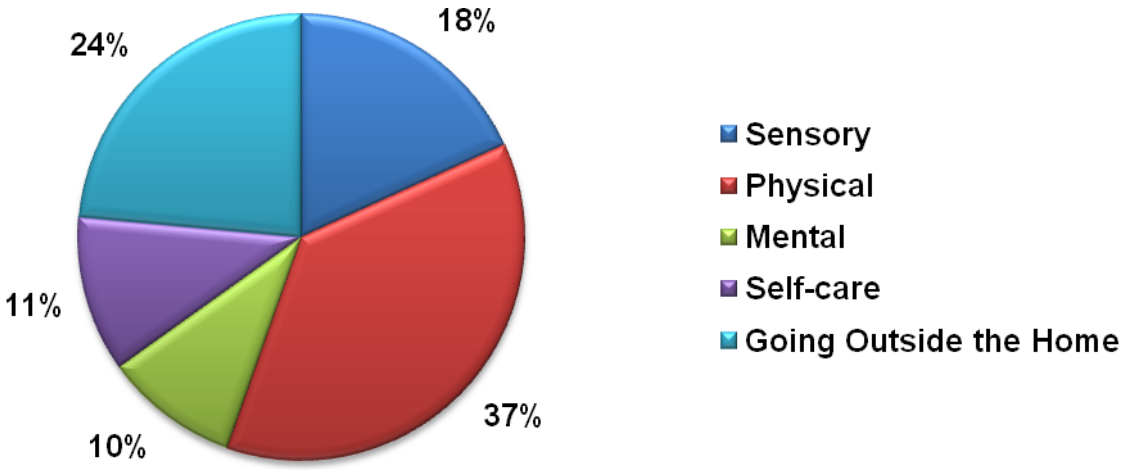
According to the 2000 US Census, 5.4% of children 5 to 15 year olds, 17.1% of 16 to 64 year olds and 38.7% of those 65 years and older have a disability in Nashua. Of those individuals 5 to 15 years of age with a disability, 61% have a mental disability and 11% have a physical disability. For adults over the age of 65 years, 37% have a physical disability and 24% have difficulty going outside of the home (Figure 8.2; 8.3).[9] In Nashua, census tracts 103.01, 103.02, 109, and 112 have over 530 households with individuals over the age of 65 years. Senior housing and special elderly facilities which includes long-term care and assisted living facilities are indicated on the map with a yellow or red circle (Map 8.1).

Figure 8.2 Nashua's Children 5-15 years of Age by Type of Disability



Source: 2000 US Census

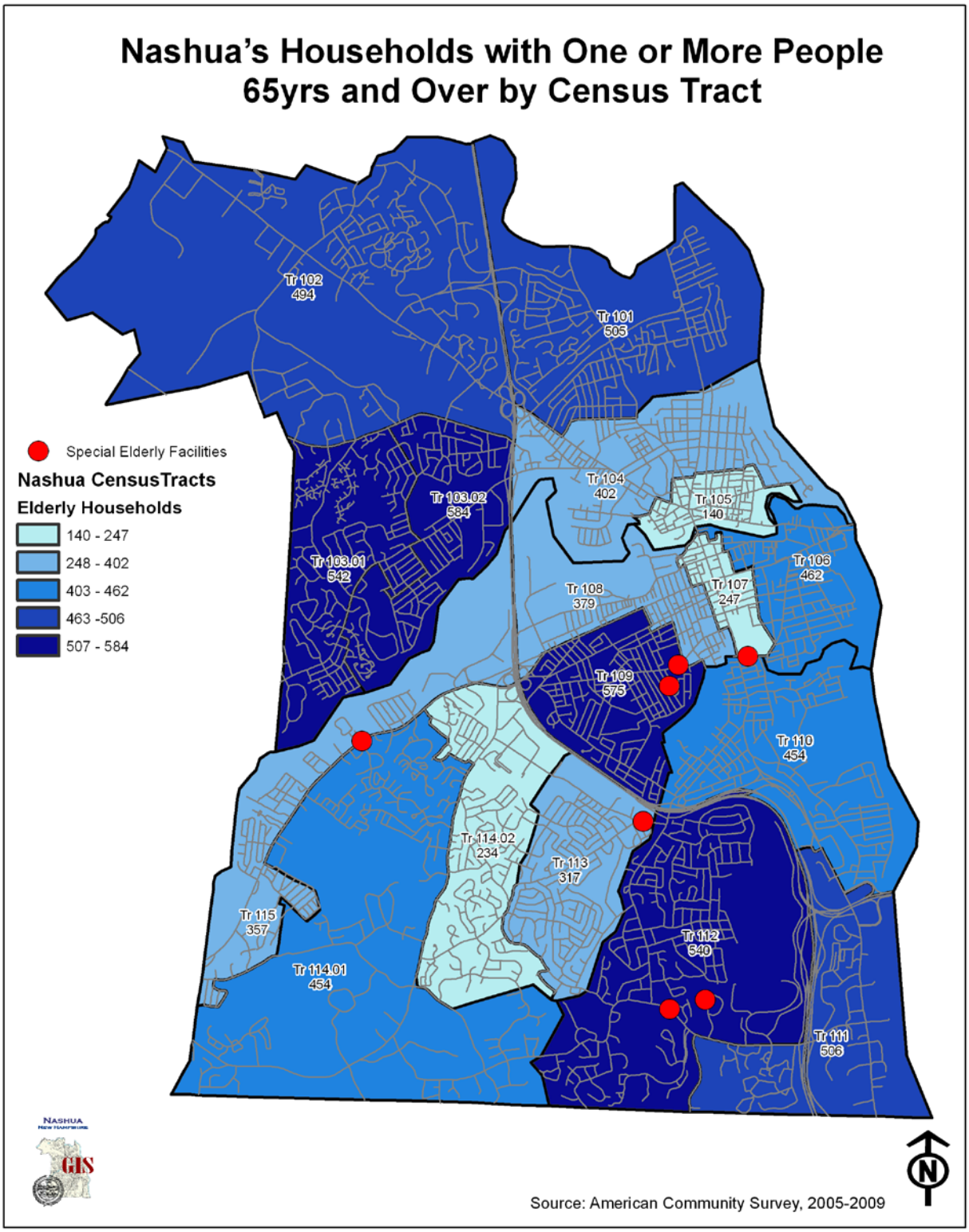
Figure 8.3 Nashua's Adults 65 years and Over by Type of Disability



Source: 2000 US Census

For more information on getting prepared for emergencies, visit www.ready.gov or www.getreadyforflu.org.

Map 8.1 Elderly Households by Census Tract



Source: City of Nashua Assessing Department; US Census Bureau

Heat and Cold Exposure

Extreme heat or cold can affect the human body and cause damage. During exposure to extreme heat and high humidity the body has to work harder to maintain a normal temperature. When it is unable to do so, one may experience heat cramps, heat exhaustion and heat stroke, the latter of which can result in death. People living in urban areas and the elderly are at increased risk of illness due to extreme heat for prolonged periods of time.[10] In the State of NH, emergency department visits from 2003-2007 for heat related exposures ranged from a low of 94 in 2004 to a high of 164 in 2005.[11] The last heat wave to affect NH was in the summer of 2010.

Heavy snow storms and ice storms can cause power outages and a lack of adequate heat in households. After prolonged exposure to extreme cold, individuals can suffer from hypothermia and frostbite.[12] The last major ice storm to hit New Hampshire was in the winter of 2008 and caused power outages to half of the State's population. For cold-related exposures, there were 70 emergency department visits in 2006 and 141 in 2004 (Table 8.3).[11] According to the 2010 NCHS, 16,728 (49%) of households have an alternate heating source and 93% have working air conditioning. Power outages also increase the risk of carbon monoxide exposure from improper use of generators. For more information on carbon monoxide exposure, go to Chapter 5: Healthy Homes & Environmental Health.

Table 8.3 State of NH Emergency Department Visits for Cold and Heat Exposures

Year	Cold-related exposures including frostbite and hypothermia	Heat-related exposures including heat cramps, exhaustion, stroke
2003	133	111
2004	141	94
2005	117	164
2006	70	159
2007	114	127
Source: NH DHHS		

Evacuations

Development of evacuation plans and protocols is an important part of emergency preparedness planning and can range from the evacuation of a single facilty to the entire community. During the 2010 NCHS when residents were asked if they would comply if a mandatory evacuation was issued by local officials, 94% or 32,104 households would evacuate. If evacuated, 11% indicated they would go to an emergency shelter, 13% would go to a hotel and 63% would go to a relative or friends house (Table 8.4). The main concerns shared by residents about evacuation orders include traffic jams and leaving pets and property behind.[7] According to the BRFSS, only 23.9% (CI 17.7-30.1%) of residents have a household disaster evacuation plan.[6]

Table 8.4 Evacuations

If you had to evacuate from your home, where would you go?		
	Estimated number of housing units	**Percentage (n)**
Relative/Friends House	21,608	63% (131)
Hotel	4,264	13% (26)
Emergency Shelter	3,772	11% (23)
Other	1,328	10% (27)
Source: NH DHHS		

Source: Eddie Sullivan, Nashua High School Photography Project

"Preparedness is the only way we can combat a natural disaster."

- John Ouinlan

[1] US Department of Homeland Security. (2008, January). *National Response Framework*. Retrieved on April 26, 2011, from *http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf*.

[2] FEMA Declared Disasters by Year or State. (2011, May 27). Retrieved May 27, 2011, from http://www.fema.gov/news/disasters_totals_annual.fema.

[3] *The 2009 H1N1 Pandemic: Summary Highlights, April 2009 – April 2010*. (2010, June 16). Retrieved on April 26, 2011, from http://www.cdc.gov/h1n1flu/cdcresponse.htm.

[4] *History of Flu Pandemics*. (n.d) Retrieved April 26, 2011, from http://www.flu.gov/individualfamily/about/pandemic/history.html

[5] Ready.gov. (2011). Ready America. Retrieved on May 27, 2011 from http://www.ready.gov/america/index.html.

[6] Bureau of Public Health Statistics and Informatics. *New Hampshire Behavioral Risk Factor Surveillance Survey Data*. Concord, New Hampshire: New Hampshire Department of Health & Human Services (NH DHHS), 2007.

[7] City of Nashua, Division of Public Health & Community Services. *2010 Nashua Community Health Survey*. Nashua, New Hampshire: City of Nashua, 2010.

[8] NH DHHS. (2010). *Functional Needs Guidance: State Emergency Operations Plan Support Annex*. Retrieved on June 5, 2011 from http://www.nh.gov/safety/divisions/hsem/documents/nh_functional_needs_guidance.pdf.

[9] U. S. Census Bureau. (2000 Census Summary File 3). *Disability Status by Sex*. Retrieved on May 27, 2011 from www.census.gov.

[10] U.S. Department of Homeland Security. (2010). *Extreme Heat*. Retrieved on May 27, 2011 from http://www.fema.gov/hazard/heat/index.shtm.

[11] Office Health Statistics and Data Management. *Emergency Department Database*. Concord, New Hampshire: NH DHHS, 2003-2007.

[12] U.S. Department of Homeland Security. (2010). *Winter Storms and Extreme Cold*. Retrieved on May 27, 2011 from http://www.fema.gov/hazard/winter/index.shtm.

Source: Eddie Sullivan, Nashua High School Photography Project